

REMARKS

The objection to the claims has been obviated by revising claims 27 and 30-33 to replace the objected-to language with clearer and more concise wording.

The rejection of claims 21-33 on the grounds of nonstatutory obviousness-type double patenting over claims 1-26 of USP 7,533,842 has been obviated by the concurrent filing of an appropriate terminal disclaimer.

Finally, applicant respectfully traverses the rejection of claims 27-33 over the Mori JP 2004-42782 (of which US 2004/0075008 and USP 7108284 are equivalents). As set forth on page 2 of the specification, the principal purpose of the invention is to provide a clutch for a webbing take-up device that can transmit torque from an electric motor to a webbing shaft through a simple and compact structure. To this end, the clutch of the invention includes lock bars 154 that are **always biased** toward engagement with a ratchet gear connected to the webbing shaft, in combination with sliders 144 which **move** relative to the rotor 124 in response to the drive motor to either release or to withdraw the lock bars 154 from engagement with the ratchet 112. The mechanical interplay between the sliders 144, lock bars 154, and rotor 124 is illustrated in Figures 3, 4A and 4B and described in the penultimate paragraph of page 15 of the specification. Figure 3 illustrates how spring retainer 148 bears against the slider 144, and generates a frictional force between the slider 144 and the body portion 126 of the rotor 124, thereby keeping it in place within the rotor 124. The movement of the sliders 144 relative to the rotor 124 may best be seen by comparing Figures 4A and 4B. Note in particular how the slider 144 **moves relative to guide hole 142 in rotor 124** when withdrawing from and releasing the spring-biased lock bar 154 into engagement with the ratchet 112.

Claim 21 expressly recites these advantageous and unique features of the clutch of the inventive webbing take-up device. Specifically, claim 21 recites a webbing take up device comprising a take-up shaft around which a webbing for restraining a passenger is wound such that the webbing can be taken up and pulled out; a motor; and a clutch that is mechanically intervened between the motor and the take-up shaft, transmits the rotation of the motor to the take-up shaft to cause the take-up shaft to rotate in the webbing take-up direction, and cuts off the transmission of rotation arising at the take-up shaft side to prevent that rotation from being

transmitted to the motor, wherein the clutch includes a case, a rotating body that is disposed coaxially with respect to the take-up shaft and rotates as a result of the rotation of the motor being transmitted to the rotating body, a ratchet that is integrally coupled to the take-up shaft, and

sliders that are configured to be **relatively movable** within a predetermined range **with respect to the rotating body** as a result of being retained in the case by **frictional force**, and

lock bars that are disposed on the rotating body, **are always biased** in a direction in which the lock bars **engage with the ratchet**, and are **ordinarily retained by the sliders** in positions where the lock bars are disengaged from the ratchet, and when the rotating body rotates in the webbing take-up direction, the lock bars move away from the sliders such that the retention is released, engage with the ratchet by the biasing force, transmit to the ratchet the rotation of the rotating body in the webbing take-up direction, and **allow the relative rotation of the ratchet with respect to the rotating body in the webbing take-up direction**, and when the rotating body rotates in the webbing pullout direction, the lock bars move toward the sliders and are moved to and retained in the disengaged positions by the sliders.

The Mori JP 2004-42782 patent document neither discloses nor suggests the webbing take up device recited in claim 21, for at least three reasons.

First, the Mori '008 US Published Patent Application neither discloses nor suggests the recited relatively movable sliders. In the office Action of December 4th, the Examiner equates the blocks 146 in the Mori '008 US Published Patent Application with the sliders 144 recited in claim 21. However, as disclosed in paragraph [0121] of the Mori '008 reference, the blocks 146 (the base portion 142 of the rotating disc 140) “are integrally connected to the attachment pieces 172 of the friction ring 170 by fasteners such as screws or the like.” Consequently, the blocks 146 neither disclose nor suggest the recited “sliders that are configured to be **relatively movable** within a predetermined range **with respect to the rotating body...**” The use of the combination of the blocks 146, pushing pieces 154 and springs 158 in the Mori '008 reference in lieu of the recited movable and frictionally engaged sliders recited in claim 21 is a highly consequential difference, as it renders the Mori clutch mechanism **unavoidably larger** than the relatively compact structure afforded by the claimed invention. Moreover, since the individual pushing pieces 154 are **integral with** the rotating disc via the compression coil springs 158, in the event that a tooth jumping occurs while the pawl 130 at one side engages with the external teeth 122 of the adapter 112, torque from the pawl 130 at

one side acts on the rotating disc 140 via the pushing piece 154 and the compression coil spring 158 at one side, which in turn can adversely influence the engagement between the pawl 130 at the other side and the adapter 112 via the pushing piece 154 and the compression coil spring 158 at the other side. By contrast, since the respective sliders can **individually control** the lock bars, even if a tooth jumping occurs when the lock bar at one side engages the ratchet, the engagement of the lock bar at the other side will **not** be influenced.

Second, the Mori '008 reference neither discloses nor suggests the recited "lock bars that are disposed on the rotating body, **are always biased** in a direction in which the lock bars **engage with the ratchet**,...." To the contrary, when the distal end 134A of the pawl of the Mori '008 clutch does **not** contact the outer peripheral portion of the adapter 112. Consequently, the inclined surface 164 of the pawl 130 opposes the pushing piece 154 such that the pawl 130 does **not** come into contact with the pushing piece 154 and is **not** biased by the pushing piece 154 or the compression coil spring 158. Hence the Mori '008 reference neither discloses nor suggests the recited "lock bars that are disposed on the rotating body, **are always biased** in a direction in which the lock bars **engage with the ratchet**,...." Again, this difference in mechanical structure has important consequences. When the pushing piece 154 biased by the compression coil spring 158 comes into contact with the pawl 130 to make it rotate, a **loss** of the relative movement between the base plate 92 and the rotating disc 140 occurs with the buffer of the compression coil spring 158. Hence the pawl 130 has to take a longer time to engage with the adapter 112, and the relative movement between the base plate 92 and the rotating disc 140 becomes large. By contrast, the coupling pieces 160 of the lock bars 154 in the claimed invention contact directly with the spring 164 and are continuously biased by the biasing power of the spring 164 in a direction in which they engage with the ratchet. Therefore, when the rotating body rotates in the take-up direction, the lock bars can be **immediately moved to engage with the ratchet** due to the biasing power of the spring, which makes the time taken to achieve the engagement between the lock bar and the ratchet become shorter and makes the relative movement between the rotating body and the slider become smaller.

Third, the Mori '008 reference neither discloses nor suggests lock bars that, when the rotating body rotates in the webbing take-up direction, "move **away from the sliders** such that the retention is released, engage with the ratchet by the biasing force, transmit to the ratchet the

rotation of the rotating body in the webbing take-up direction, and **allow the relative rotation of the ratchet with respect to the rotating body in the webbing take-up direction...**” By contrast, it is clear that the lock bars 130 in the Mori ‘008 reference **cannot** perform this recited function, for the simple reason that there is no mechanical equivalent to the recited sliders that move relative to the rotating body, as previously pointed out.

For all of these reasons, claim 21 is clearly patentable over the Mori JP 2004-42782 patent document.

Claims 22-29 are each patentable not only by virtue of their dependency on claim 21, but for their recitation of additional mechanical features that are not remotely hinted at in the Mori JP 2004-42782 patent document.

Claim 30 is also patentable over the Mori JP 2004-42782 patent document, albeit for somewhat different reasons. Like claim 21, claim 30 also recites sliders that are moveable relative to the rotating member, as well as lock bars that are always biased toward engagement with the ratchet. Claim 30 further recites **“retention portions that cause predetermined drag...”** In the Mori reference, when the rotating body is stopped, the releasing piece 136 of the pawl 130 is accommodated in the releasing piece accommodating portion 168 which is formed at the block 146. However, it is clear from Fig. 5 that the releasing piece is merely accommodated in the releasing piece accommodating portion without any structure for preventing the movement separating from each other being provided therebetween. By contrast, the recited retention portions in the present invention cause a predetermined drag to arise with respect to the movement of the sliders away from the lock bars. Due thereto, even when the sliders try to move away from the lock bars due to intense vibration of the vehicle or the like during travel, the separating movement and erroneous linkage of the clutch are prevented. Accordingly, claim 30 is clearly patentable over the Mori JP 2004-42782 patent document.

Claim 31 is patentable at least by reason of its dependency on claim 30.

Claim 32 includes substantially the same limitations as claim 21 and hence is patentable for the same reasons.

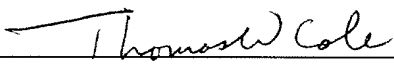
Finally, claim 33 is patentable not only for its recitation of sliders that are moveable relative to the recited rotating body, but for its recitation of “a spacer that couples together

and synchronizes the pair of sliders...” another feature that is not remotely hinted at in the Mori JP 2004-42782 patent document.

Now that all of the claims are believed to be allowable, the prompt issuance of a Notice of Allowability is hereby earnestly solicited.

Respectfully submitted,

Date: March 4, 2010



Thomas W. Cole
Registration No. 28,290

Customer No. 25570

Roberts Mlotkowski Safran & Cole P.C.
P.O. Box 10064
McLean, VA 22102
Telephone: (703) 677-3001